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EXAMINER	
CUNNINGHAM, GREGORY F	
ART UNIT	**PAPER NUMBER**
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/819,772	PETROV ET AL.	
	Examiner	Art Unit	
	GREGORY F. CUNNINGHAM	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-10,55-63 and 114-117* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-10,55-63 and 114-117* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to amendment filed 6/12/2009.

2. The disposition of the claims is as follows: claims 2 – 10, 55 – 63, and 114 - 117 are pending in the application. Claims 5, 58 and 115 - 117 are independent claims. Claims 1, 11 – 54 and 64 - 113 were previously cancelled.

Claim Rejections - 35 USC § 102

3. In view of amended and cancelled claims and review of cited references, 102 rejections are withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2-10, 55-63 and 114-117 are rejected under 35 U.S.C. 103(a) as being unpatentable over MatLab Primer, hereinafter MatLab.

A. MatLab discloses claim 5, "A method for restoring a previous version of a three dimensional mesh model on a computer system comprising:

retrieving a stored copy of an earlier state [page 3 at 'Saving a session.

When one logs out or exits MATLAB all variables are lost. However, invoking the command save before exiting causes all variables to be written to a non-human-readable diskfile named matlab.mat. When one later reenters MATLAB, the command load will restore the workspace to its former state.'] of the three dimensional mesh model [page 15 at '18. Graphics.

MATLAB can produce planar plots of curves, 3-D plots of curves, 3-D mesh surface plots, and 3-D faceted surface plots. The primary commands for these facilities are plot, plot3, mesh, and surf, respectively. An introduction to each of these is given below. To preview some of these capabilities, enter the command demo and select some of the graphics options.']; and [page 18 at '3-D mesh and surface plots.

Three dimensional wire mesh surface plots are drawn with the command mesh. The command mesh(z) creates a three-dimensional perspective plot of the elements of the matrix z. The mesh surface is defined by the z-coordinates of points above a rectangular grid in the x-y plane. Try mesh(eye(10)).

Similarly, three dimensional faceted surface plots are drawn with the command surf. Try surf(eye(10)).

To draw the graph of a function z = f(x; y) over a rectangle, one first defines vectors xx and yy which give partitions of the sides of the rectangle. With the function meshgrid one then creates a matrix x, each row of which equals xx and whose column length is the length of yy, and similarly a matrix y, each column of which equals yy, as follows:

[x,y] = meshgrid(xx,yy);

One then computes a matrix z, obtained by evaluating f entrywise over the matrices x and y, to which mesh or surf can be applied. You can, for example, draw the graph of

$z = e^{-x2-y2}$ over the square [-2; 2] x [-2; 2] as follows (try it):

xx = -2:.2:2;

yy = xx;[x,y] = meshgrid(xx,yy);

z = exp(-x.^2 - y.^2);

mesh(z)

One could, of course, replace the first three lines of the preceding with

[x,y] = meshgrid(-2:.2:2, -2:.2:2);'] on the computer system [page ii, second para. at 'computer'];

retrieving an ordered list of operations on the computer system [page 9, at '12. M-files.

MATLAB can execute a sequence of statements stored in diskfiles. Such files are called \M-files" because they must have the file type of \.m" as the last part of their filename. Much of your work with MATLAB will be in creating and refining M-files. M-files are usually created using your local editor.

There are two types of M-files: script files and function files. Script files.

A script file consists of a sequence of normal MATLAB statements. If the file has the filename, say, rotate.m, then the MATLAB command rotate will cause the statements in the file to be executed. Variables in a script file are global and will change the value of variables of the same name in the environment of the current MATLAB session.

Script files may be used to enter data into a large matrix; in such a file, entry errors can be easily corrected. If, for example, one enters in a diskfile data.m

A = [

1 2 3 4

5 6 7 8

];

then the MATLAB statement data will cause the assignment given in data.m to be carried out. However, it is usually easier to use the MATLAB function load (see section 2).

An M-file can reference other M-files, including referencing itself recursively.']; and

performing at least some of the operations in the ordered list of operations on the retrieved copy of the three dimensional mesh model [see page 18, supra,

'Three dimensional wire mesh surface plots are drawn with the command mesh. The command mesh(z) creates a three-dimensional perspective plot of the elements of the matrix z. The mesh surface is defined by the z-coordinates of points above a rectangular grid in the x-y plane. Try mesh(eye(10)).

Similarly, three dimensional faceted surface plots are drawn with the command surf. Try surf(eye(10)).

To draw the graph of a function z = f(x; y) over a rectangle, one first defines vectors xx and yy which give partitions of the sides of the rectangle. With the function meshgrid one then creates a matrix x, each row of which equals xx and whose column length is the length of yy, and similarly a matrix y, each column of which equals yy, as follows:

[x,y] = meshgrid(xx,yy);

One then computes a matrix z, obtained by evaluating f entrywise over the matrices x and y, to which mesh or surf can be applied. You can, for example, draw the graph of

$z = e^{-x2-y2}$ over the square [-2; 2] x [-2; 2] as follows (try it):

xx = -2:.2:2;

yy = xx;[x,y] = meshgrid(xx,yy);

z = exp(-x.^2 - y.^2);

mesh(z)']

One could, of course, replace the first three lines of the preceding with

[x, y] = meshgrid(-2:.2:2, -2:.2:2);

wherein the ordered list of operations contains the operations [M-file] which if performed in order [an executed M-file] on the earlier state of the three dimensional mesh model [page 18, 3D mesh] would result in a current state of the three dimensional mesh model [see page 9, M-files and page 18, 3D mesh as given supra, whereby]" [as detailed].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply M files, meshgrid and 3D mesh plots disclosed by MatLab and to try, as detailed supra, using MatLab to assert claim 5, and motivated to perform these functions particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment with the examples and to draw a 3-D mesh graph.

B. MatLab makes obvious claim 6, "The method of claim 5 wherein each operation is performed in the same order in which it was originally placed in the ordered list [ordered list of M-file and given 3D mesh example, see pages 9 and 18, supra for claim 5]" supra for claim 5 and [as detailed].

C. MatLab makes obvious claim 7, "The method of claim 6 further comprising the step of." rendering the retrieved copy of the three dimensional mesh model to a display device after each operation is performed [page 3 at '4. Statements, expressions, and variables; saving a session.

MATLAB is an expression language; the expressions you type are interpreted and evaluated.

MATLAB statements are usually of the form

variable = expression, or simply

expression

Expressions are usually composed from operators, functions, and variable names. Evaluation of the expression produces a matrix, which is then displayed on the screen and assigned to the variable for future use. If the variable name and = sign are omitted, a variable ans (for answer) is automatically created to which the result is assigned.

A statement is normally terminated with the carriage return. However, a statement can be continued to the next line with three or more periods followed by a carriage return. On the other hand, several statements can be placed on a single line if separated by commas or semicolons.

If the last character of a statement is a semicolon, the printing is suppressed, but the assignment is carried out. This is essential in suppressing unwanted printing of intermediate results.

MATLAB is case-sensitive in the names of commands, functions, and variables. For example, solveUT is not the same as solveut.

The command who (or whos) will list the variables currently in the workspace. A variable can be cleared from the workspace with the command clear variablename. The command clear alone will clear all nonpermanent variables.

The permanent variable eps (epsilon) gives the machine unit roundoff - about 10^{-16} on most machines. It is useful in specifying tolerences for convergence of iterative processes.

A runaway display or computation can be stopped on most machines without leaving MATLAB with CTRL-C (CTRL-BREAK on a PC). Saving a session.

When one logs out or exits MATLAB all variables are lost. However, invoking the command save before exiting causes all variables to be written to a non-human-readable diskfile named matlab.mat. When one later reenters MATLAB, the command load will restore the workspace to its former state.'] and [page 15 at '18. Graphics.

MATLAB can produce planar plots of curves, 3-D plots of curves, 3-D mesh surface plots, and 3-D faceted surface plots. The primary commands for these facilities are plot, plot3, mesh, and surf, respectively. An introduction to each of these is given below. To preview some of these capabilities, enter the command demo and select some of the graphics options.' Wherein leaving the semicolon off renders each to the printer.] and [page 18 at 3-D mesh and surface plots, given supra for claim 5, wherein the plot command renders to a display device]" supra for claim 6 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply MatLab statements and saving and retrieving sessions disclosed by MatLab and to try, as detailed supra, using MatLab to assert claim 7, and motivated to perform these functions particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment with 3-D mesh models.

D. MatLab makes obvious claim 8, "The method of claim 6 wherein the ordered list of operations is filtered to exclude at least one record [page 18 at 'Completely analogous to plot in two dimensions, the command plot3 produces curves in three dimensional space. If x, y, and z are three vectors of the same size, then the command plot3(x,y,z) will produce a perspective plot

of the piecewise linear curve in 3-space passing through the points whose coordinates are the respective elements of x, y, and z. These vectors are usually defined parametrically. For example, t=.01:.01:20*pi; x=cos(t); y=sin(t); z=t.^3; plot3(x,y,z)
will produce a helix which is compressed near the x-y plane (a \slinky"). Try it.

Just as for planar plots, a title and axis labels (including zlabel) can be added. The features of axis command described there also hold for 3-D plots; setting the axis scaling to prescribed limits will, of course, now require a 6-vector.' Wherein limiting the axis scale will limit (filter) the plotted values for (at least one record) if not more depending on the set limit values]" supra for claim 6 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply MatLab statements and saving and retrieving sessions disclosed by MatLab and to try, as detailed supra, using MatLab to assert claim 8, and motivated to perform these functions particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment with 3-D mesh models.

E. MatLab makes obvious claim 9, "The method of claim 8 wherein the at least one excluded record is at an end of the list [Just as for planar plots, a title and axis labels (including zlabel) can be added. The features of axis command described there also hold for 3-D plots; setting the axis scaling to prescribed limits will, of course, now require a 6-vector.' Wherein limiting the axis scale will limit (filter) the plotted values for (at least one record at the end of a list) if not more depending on the set limit values]" supra for claim 8 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply MatLab statements and saving and retrieving sessions disclosed by

MatLab and to try, as detailed supra, using MatLab to assert claim 9, and motivated to perform these functions particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment with 3-D mesh models.

(Examiner's note: Beyond this MatLab Primer, MatLab also has many toolboxes with filtering functions, and commands also to set floor, ceiling, domain and range parameters.)

F. MatLab makes obvious claim 10, "The method of claim 8 wherein the at least one excluded record is at least one record removed from an end of the list [Just as for planar plots, a title and axis labels (including zlabel) can be added. The features of axis command described there also hold for 3-D plots; setting the axis scaling to prescribed limits will, of course, now require a 6-vector.' Wherein limiting the axis scale will limit (filter) the plotted values for (at least one record removed from end of list) if not more depending on the set limit values]" supra for claim 8 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply MatLab statements and saving and retrieving sessions disclosed by MatLab and to try, as detailed supra, using MatLab to assert claim 10, and motivated to perform these functions particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment with 3-D mesh models.

(Examiner's note: Beyond this MatLab Primer, MatLab also has many toolboxes with filtering functions, and commands also to set floor, ceiling, domain and range parameters.)

G. Per independent claim 58, this is directed to an article of manufacture for performing the method of independent claim 5, and therefore is rejected to independent claim 5.

H. Per dependent claims 59-63, these are directed to an article of manufacture for performing the method of dependent claims 6-10, and therefore are rejected to dependent claims 6-10.

J. MatLab makes obvious claim 115, "A method for managing a three dimensional mesh model on a computer system, comprising:

storing a copy of a first state of the three dimensional mesh model on the computer system [page 3 at 'Saving a session.

When one logs out or exits MATLAB all variables are lost. However, invoking the command save before exiting causes all variables to be written to a non-human-readable diskfile named matlab.mat. When one later reenters MATLAB, the command load will restore the workspace to its former state.'] of the three dimensional mesh model [page 15 at '18. Graphics.

MATLAB can produce planar plots of curves, 3-D plots of curves, 3-D mesh surface plots, and 3-D faceted surface plots. The primary commands for these facilities are plot, plot3, mesh, and surf, respectively. An introduction to each of these is given below. To preview some of these capabilities, enter the command demo and select some of the graphics options.']; and [page 18 at '3-D mesh and surface plots.

Three dimensional wire mesh surface plots are drawn with the command mesh. The command mesh(z) creates a three-dimensional perspective plot of the elements of the matrix z. The mesh surface is defined by the z-coordinates of points above a rectangular grid in the x-y plane. Try mesh(eye(10)).

Similarly, three dimensional faceted surface plots are drawn with the command surf. Try surf(eye(10)).

To draw the graph of a function z = f(x; y) over a rectangle, one first defines vectors xx and yy which give partitions of the sides of the rectangle. With the function meshgrid one then creates a matrix x, each row of which equals xx and whose column length is the length of yy, and similarly a matrix y, each column of which equals yy, as follows:

[x,y] = meshgrid(xx,yy);

One then computes a matrix z, obtained by evaluating f entrywise over the matrices x and y, to which mesh or surf can be applied. You can, for example, draw the graph of

$z = e^{-x2-y2}$ over the square [-2; 2] x [-2; 2] as follows (try it):

xx = -2:.2:2;

yy = xx;[x,y] = meshgrid(xx,yy);

z = exp(-x.^2 - y.^2);

mesh(z)

One could, of course, replace the first three lines of the preceding with

[x,y] = meshgrid(-2:.2:2, -2:.2:2);'];

performing operations on the three dimensional mesh model, wherein the three dimensional mesh model is in a second state after performing the operations [MatLab's M-file and 3-D mesh, see pages 9 and 18];

storing a record of each of the operations in an ordered list on the computer system [M-file, page 9]; and

reapplying at least some of the operations stored in the ordered list to the stored first state of the three dimensional mesh model [The editing of M-files to modify the ordered list of the M-file, see page 13 at 'Managing M-files'; and

page 9, bottom at "An M-file can reference other M-files, including referencing itself recursively.'], wherein the three dimensional mesh model is in a third state after reapplying the at least some of the operations [Editing M-files via page 13 'Managing M-files' and exemplified on page 18 at 'One could, of course, replace the first three lines of the preceding with [x,y] = meshgrid(-2:.2:2, -2:.2:2); Try this plot with surf instead of mesh', whereby "a third state" is obvious by editing the parameter values and/or functions of the M-file]" [as detailed].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply MatLab statements and saving and retrieving sessions disclosed by MatLab and to try, as detailed supra, using MatLab to assert claim 115, and motivated to perform these functions particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment and to draw 3-D mesh models.

K. MatLab makes obvious claim 2, "The method of claim 115 wherein the step of storing a record of each of the operations includes:

storing all of the parameters necessary to repeat the operations [corresponds to MatLab's save command: 'invoking the command save before exiting causes all variables to be written to a non-human-readable diskfile named matlab.mat' – page 3, and/or M-files, see page 9 given supra]" supra for claim 115 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply MatLab statements and saving and retrieving sessions disclosed by MatLab and to try, as detailed supra, using MatLab to assert claim 2, and motivated to perform saving sessions and M-files particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment MatLab's utilities.

L. MatLab makes obvious claim 3, "The method of claim 2 wherein the ordered list contains a record for each operation that has been previously performed on the three dimensional mesh model in the order in which it was performed [M-files and 3-D mesh, see pages 9 and 18, given supra]" supra for claim 2 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply MatLab statements and saving and retrieving sessions disclosed by MatLab and to try, as detailed supra, using MatLab to assert claim 3, and motivated to perform saving sessions and M-files particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment MatLab's utilities.

M. MatLab makes obvious claim 4, "The method of claim 115 wherein the step of reconstructing the three dimensional model includes:

retrieving the stored copy of the first state of the three dimensional mesh model [MatLab's load command, see 'the MATLAB command load.ext will read this file to the variable data in your MATLAB workspace. This may also be done with a script file (see section 12)' - pages 2 , 'the command load will restore the workspace to its former state' – page 3, and M-files – page 9];

retrieving the ordered list of operations [M-file – page 9, given supra]; and

performing at least one operation in the ordered list of operations on the retrieved copy of the first state of the three dimensional mesh model [M-file and 3-D mesh – pages 9 and 18, given supra]" supra for claim 115 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply MatLab statements and saving and retrieving sessions disclosed by

MatLab and to try, as detailed supra, using MatLab to assert claim 4, and motivated to perform saving sessions and M-files particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment MatLab's utilities.

N. Per independent claims 116 and 117, these are directed to an article of manufacture and a system, respectively, for performing the method of independent claim 115, and therefore are rejected to independent claim 115.

P. Per dependent claims 55 - 57 and 114, these are directed to an article of manufacture and a system, respectively, for performing the method of dependent claims 2 - 4, and therefore are rejected to dependent claims 2 - 4.

Response to Arguments

6. Applicant's arguments with respect to claims 2-10, 55-63 and 114-117 have been considered but are moot in view of the new ground(s) of rejection. Although Applicant's arguments that MatLab does not anticipate said claims has been confirmed, MatLab does make obvious said claim particularly since the user is encouraged to work at the computer while reading the MatLab Primer and freely experiment MatLab's utilities. Therefore anticipation under *35 USC § 102* has been withdrawn and obviousness under *35 USC § 103* has been entered.

Responses

17. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Inquiries

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory F. Cunningham whose telephone number is (571) 272-7784.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on (571) 272-7778. The Central FAX Number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Greg F Cunningham/
Examiner, Art Unit 2624
06/30/2009

/Matthew C Bella/
Supervisory Patent Examiner, Art Unit 2624